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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 18779.1-2022

Replacing GB/T 18779.1-2002

**Geometrical product specifications (GPS) - Inspection by measurement
of workpieces and measuring equipment - Part 1: Decision rules for
verifying conformity or nonconformity with specifications**

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foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules for Standardization Documents" drafting.

This document is the first part of GB/T 18779 "Geometric Product Specification (GPS) Measurement and Inspection of Workpieces and Measuring Equipment".

GB/T 18779 has published the following parts.

- Part 1. Judgment rules for qualified or unqualified verification according to the specification;
- Part 2. Guidelines for the evaluation of measurement uncertainty in GPS measurement, measurement equipment calibration and product verification;
- Part 3. Guidance on reaching a consensus on the expression of measurement uncertainty;
- Part 4. The basis for determining the functional limits and normative limits in the rules;
- Part 5. Inspection uncertainty of indicating measuring instruments;
- Part 6. General decision rules for acceptance/rejection of instruments and workpieces.

This document replaces GB/T 18779.1-2002 "Technical Specification for Product Geometric Quantity (GPS) Measurement and Inspection of Workpieces and Measuring Equipment

Part 1

Part. Judgment Rules for Passed or Unqualified Inspection According to Standards, compared with GB/T 18779.1-2002, except for structural adjustments and editorial changes

In addition, the main technical changes are as follows.

a) The scope of the document has been changed (see Chapter 1, Chapter 1 of the.2002 edition).

b) Deleted term.

Tolerance limit, tolerance, tolerance zone, maximum allowable error, specification, specification limit, upper specification limit, lower specification limit, measurand, measurement result,

Nominal value, measurement uncertainty, standard uncertainty, combined standard uncertainty, expanded uncertainty, inclusion factor, measurement result

Complete statement of results, qualified, qualified area, unqualified, unqualified area (see 3.1~3.8, 3.10~3.22 of the.2002 edition).

c) Added terms.

Pass Probability Limit, Default Pass Probability Limit, Lower Fail Probability, Upper Fail Probability, Fail Probability Limit, Default Fail Probability

Restriction, acceptance area, default acceptance area, rejection area, default rejection area (see 3.2~3.11).

d) The judgment method has been changed, and the focus of the judgment has been changed from inclusion probability to qualified (or unqualified) probability (see 4.1,.2002 edition

5.1).

e) Replace the original default coverage factor $k=2$ with the default qualified (or unqualified) probability of 95%, so as to ensure the judgment risk of qualified judgment

Constant (see 4.2, 4.3, Chapter 4 of the.2002 edition).

This document is equivalent to ISO 14253-1:2017 "Geometric Product Specifications (GPS) Measurement and Inspection of Workpieces and Measuring Equipment"

Part 1.Judgment rules for passing or failing verification according to the specification.

Please note that some contents of this document may refer to patents. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

In order to reduce disputes between suppliers and customers during the acceptance process of workpieces and measuring equipment, reduce the cost of acceptance, and improve the economic efficiency of products

In order to better integrate with international trade rules, the acceptance strategy of workpieces and measuring equipment in my country and the rules for judging whether the acceptance is qualified or not need to be studied urgently.

formulate.

In order to adapt to my country's reform and opening up situation and to meet the needs of international trade, technology and economic exchanges, GB/T 18779 is equivalent to adopt

ISO 14253.

GB/T 18779 is a general standard for product geometric technical specifications (GPS) (see GB/T 20308), which affects the chain link of the GPS standard matrix model

Conformity and Nonconformity, Measurement, Measuring Equipment and Calibration.

GB/T 18779 applies the basic GPS rules given in GB/T 4249; unless otherwise specified, the default judgment rules given in this document

then apply to all GPS files.

GB/T 18779 mainly expounds the acceptance strategy of workpieces and measuring equipment and the criteria for acceptance or failure in consideration of measurement uncertainty.

Acceptance judgment rules, for the convenience of readers, GB/T 18779 is divided into 6 parts. These 6 parts are both interrelated and interrelated

Independently, they together constitute the content of the acceptance strategy and qualification determination rules for workpieces and measuring equipment.

--- Part 1. Rules for judging whether the verification is qualified or unqualified according to the specification. A strategy for the qualification verification of workpieces or measuring equipment is given;

Considering the measurement uncertainty of the measured value, the default criterion for determining whether it is qualified or not is verified according to the GPS specification of the workpiece or measuring equipment.

Then; according to the GPS specification verification, the possible handling situations that can neither be judged qualified nor unqualified can be judged.

--- Part 2. Guidance for the evaluation of measurement uncertainty in GPS measurements, calibration of measuring equipment, and product verification. it is based on measurement

Guide to the Estimation of Measurement Uncertainty in the GPS Field of the Guide to the Expression of Uncertainty (GUM); provides uncertainty management procedures

(PUMA) and Practical Iterative Methods for Evaluation of Measurement Uncertainty, and Whether or not a specified target is met in terms of measurement uncertainty UE

Requirements for degree of certainty UT (i.e. $UE < UT$), evaluation of measurement uncertainty, formulation or verification (or both) of measurement procedures (including measurement criteria

pieces) etc.

--- Part 3.Guidelines for reaching a consensus on the expression of measurement uncertainty. It stipulates that the customer and the supplier solve the measurement uncertainty table

It provides a way to solve the disputes in the expression of measurement uncertainty and reach amicable agreement.

Consensus methods and specific operating procedures.

--- Part 4.The basis for determining the functional limits and normative limits in the rules. Outlines the main assumptions of the decision rules in Part 1 and discusses

It explains why these decision rules should be the default rules, and the factors that should be considered before applying different decision rules.

--- Part 5.Inspection uncertainty of indicating measuring instruments. It specifies the concepts and terminology for evaluating the uncertainty of detection values, and provides

A method for evaluating the uncertainty of detection values of indicating measuring instruments is presented.

--- Part 6.General decision rules for acceptance/rejection of instruments and workpieces. Given that when the default decision rule in Part 1 is in the economic

Surface is not the best-case decision rule.

Product Geometry Specification (GPS)

Measurement and inspection of workpieces and measuring equipment - Part 1.

Verification rules for passing or failing according to specifications

1 Scope

This document specifies the tolerance for a given workpiece characteristic (or workpiece batch characteristic) or the maximum permissible error for the metrological characteristic of the measuring equipment, including